

Instructions for Electronic Forms

2012 Washington State Energy Code Compliance Forms for Commercial, Group R1, and > 3 story R2 and R3

Revised June 2013

Intro	<p>Commercial Provision Chapters 1 - 4 of the 2012 Washington State Energy Code apply to all commercial occupancies, R-2 and R-3 occupancies greater than 3 stories above grade, and R-1 occupancy (all building heights).</p> <p>This file, LGT12-v1.XLS, has electronic compliance forms for lighting provisions as defined in Sections C101 and C405. There are three companion files: ENV12-v1.XLS (Section C402 envelope requirements), MECH12-v1.XLS (Section C403 mechanical systems requirements) and MTR12-v1.XLS (Section C409 metering requirements).</p>
Energy Code	<p>This form is a compliance aid and is not a substitute for the full energy code text or specific jurisdiction compliance requirements. Users should refer to the code text and contact the local jurisdiction for complete information. The full 2012 WSEC code text is available for download from:</p>
Commercial Provisions	https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=2670
Appendix A	https://fortress.wa.gov/ga/apps/SBCC/File.ashx?cid=2672
Start-up	<p>Open a working copy of this file and be sure to use Save As to save it to a new file name and enable macros. Alternatively, you can save the file as a template in the XLSTART subdirectory in the EXCEL directory, and open new copies with the "File New" menu command. Look for "LTG12-v1".</p>
Overview	<p>This workbook file contains multiple worksheets. Each worksheet is indicated by a tab at the bottom of the screen. You may visit each form by clicking on its tab.</p> <p>Most calculations are automated. The spaces which display the results of calculations are write-protected and cannot be edited.</p>
Save Files	<p>Each time you open this file and input information into the forms, you must save it under a new filename of your choosing using File Save As. The original template file cannot be altered. You may also save your own versions of the forms this way.</p>
Getting Around	<p>Some forms have two pages (front and back). Both pages are available on screen when you click the tab for a form. Use the scroll bars to find the second page. It is either to the right, below, or sometimes to the right and below the first page.</p>
Filling Fields	<p>All general project information and the date are entered once on "LTG-SUM." This information is automatically replicated on all other LTG forms. The LTG-SUM form accompanies all other LTG forms.</p> <p>Only fillable fields are accessible. If you try to edit any other field, you'll get an error message. You may use the TAB key to move to the next fillable field. If the TAB doesn't take you where you want to go, use the mouse. A password is not required to complete these forms.</p> <p>Avoid excessively long text strings when entering information. In some cases, text that extends beyond the available space will simply not be seen. In most cases, the text will wrap within the cell. This may force part of the form onto a new page.</p> <p>To enter the date, use this format: mm/dd/yyyy. For example, you would enter 7/1/2013 or 12/21/2014.</p> <p>Check boxes can be checked or unchecked by clicking in the box with your mouse. Radio buttons (circles) allow only one in a set to be selected.</p> <p>Drop-down lists have an arrow at the right side of the space. Click the arrow with your mouse and select the appropriate option. One of the options is a blank.</p> <p>When a form has a space for notes or explanation, click anywhere in the space to edit.</p>
Personalizing	<p>You can personalize the forms with your company name, address, phone, or any other information. This is done by editing the footer in Excel. You can then save the file under a new template name and re-use it again.</p>
Adding Lines and Removing	<p>Many tables, such as for listing envelope assembly types, have a certain number of lines for entering data. There may not always be enough lines for all the entries you need to make. Where this feature is available, you can add additional lines to the table by selecting the "+" button on the right hand side of the table with your mouse. If you can't see it, scroll right (or change the View Zoom setting).</p> <p>To remove lines that you have added, click on the "-" button with your mouse. You cannot remove lines that were not added; an error appears if you try.</p> <p>If you add additional lines with this method, the pagination will usually be affected. The forms will be forced to carry additional lines over to other pages. Be sure to submit all pages to the plans examiner.</p>
Compliance Option	<p>You must select a value for Interior Lighting Compliance Option on LTG-SUM (line 14) for this workbook to allow access to the correct form for Lighting Power Density calculations (LTG-INT-BLD Building Area Method or LTG-INT-SPACE Space-By-Space method).</p>
Printing	<p>The forms should print on any printer supported by Windows. You will need to have the following TrueType fonts installed under Windows: Arial, Times New Roman, Courier New and Wingdings. These are all standard Windows fonts.</p> <p>If you are losing form or flowchart details when printing, you may have a shortage of printer memory. Try printing problem pages individually.</p> <p>By default, only selected forms are printed. To select one or more forms, hold down the Ctrl key and click the tabs of the worksheets you need. Issue the File Print Selected Sheets command. To print the entire set, use File Print Entire Workbook.</p>

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Clean Forms	<p>It is possible to print clean, blank versions of these forms for hand filling. To do so, delete all of the heading information at the beginning of LTG-SUM, select the desired Lighting Compliance Path and Interior Lighting Compliance Option, and on LTG-EXT select the desired Lighting Zone and Compliance Option. Make sure that all fillable cells in the forms are empty. Then print the clean forms.</p> <p>For each radio button group, there is a button labeled "Clear." Clicking this button will clear the other buttons so that they will print as empty circles. The "Clear" button will not print.</p>
Partial Form Sets	<p>Forms in a set may not be deleted, because the file is locked, but you need not print all the forms, as explained in "Printing" above.</p>
Re-Calculation	<p>As this is a large file, it may respond slowly to changes if it is set to automatically re-calculate after every action. To set calculation to manual, visit the "Tools-Options-Calculation" menu item. Then manually recalculate using the F9 key.</p>

Interior Lighting Summary**LGT-SUM**

2012 Washington State Energy Code Compliance Forms for Commercial, Group R1, and > 3 story R2 and R3

Revised June 2013

Project Info	Project Address	1 - This address line will copy onto other forms	Date
		2 - This address line will copy onto other forms	For Building Department Use
		3 - This address line will copy onto other forms	
	Applicant Name:	4 - This address line will copy onto other forms	
	Applicant Address:		
	Applicant Phone:		
Project Description		<input type="checkbox"/> New Building <input type="checkbox"/> Addition <input type="checkbox"/> Alteration <input type="checkbox"/> Plans Included	
Lighting Compliance Path		<input type="radio"/> Lighting Power Density Calculations <input type="radio"/> Total Building Performance (If Total Building Performance then only LGT-CHK is required.)	
Interior Lighting Compliance Option		<input type="radio"/> Building Area Method <input checked="" type="radio"/> Space-by-space Method	
Interior Lighting System Description			
Briefly describe lighting system type and features.			
Additions and Change of Space Use (C101.4.3 & C101.4.4)			
<input type="checkbox"/> Addition area or Change of Space Use area complies with all applicable provisions as stand alone project <input type="checkbox"/> Addition area or Change of Space Use area is combined with existing building lighting systems to demonstrate compliance with all applicable provisions <i>Provide Building Area Method (LTG-INT-BLD) or Space-By-Space Method (LTG-INT-SPACE) Compliance Form. Document maximum allowed and proposed (including existing if applicable) lighting wattage of Addition or Change of Use scope. Provide applicable lighting controls per C405.2 and commissioning of lighting controls per C405.13.</i>			
Alterations, Renovations and Repairs (C101.4.3.1)			
<input type="checkbox"/> 60% or more of luminaires in space replaced <i>Provide Building Area Method (LTG-INT-BLD) or Space-By-Space Method (LTG-INT-SPACE) Compliance Form. Document maximum allowed and proposed (including existing) lighting wattage of project scope</i>			
<input type="checkbox"/> Less than 60% of luminaires in space replaced <i>Provide Space-by-space Method (LTG-INT-SPACE) Compliance Form. Document existing total wattage in space and proposed (including existing) lighting wattage of project scope</i>			
<input type="checkbox"/> Lamp and/or ballast replacement within existing luminaires only – existing total interior building wattage not increased			
<input type="checkbox"/> New wiring installed to serve added fixtures and/or fixtures relocated to new circuit <i>Provide applicable manual lighting controls (C405.2.1), occupancy sensors (C405.2.2.2), daylight zone controls (C405.2.2.3), specific application controls (C405.2.3), and commissioning of lighting controls per C405.13</i>			
<input type="checkbox"/> New or moved lighting panel <i>Provide all applicable lighting controls as noted for New Wiring, automatic time switch controls (C405.2.2.1), and commissioning of lighting controls per C405.13.</i>			
<input type="checkbox"/> Space is reconfigured - luminaires unchanged or moved only <i>Provide all applicable lighting controls as noted for New Wiring and commissioning of lighting controls per C405.13.</i>			
<input type="checkbox"/> No changes are being made to the interior lighting and space use not changed.			

Interior Lighting Summary - Space-by-Space**LTG-INT-SPACE**

2012 Washington State Energy Code Compliance Forms for Commercial, Group R1, and > 3 story R2 and R3

Revised June 2013

Project Info	Project Address	Fill this line out on LGT-SUM	Date
		Fill this line out on LGT-SUM	For Building Department Use
		Fill this line out on LGT-SUM	
	Applicant Name:	Fill this line out on LGT-SUM	

Maximum Allowed Lighting Wattage

Location (plan #, room #, or ALL)	Space Type*	Allowed Watts per ft ²	Gross Interior Area in ft ²	Watts Allowed (watts/ft ² x area)
	Atrium** Enter Height:			
	Retail Display Allowance from LGT-INT-DISPLAY			

* Select Table C405.5.2(2) category from drop down menu.

** For atriums, indicate height. Allowed wattage for first 40 feet is 0.03 W/ft. ht., above 40 feet is 0.02 W/ft. ht.

	Area	Allowed Watts
Total		

Proposed Lighting Wattage

Location (plan #, room #, or ALL)	Fixture Description (Include exempt equipment per Note 3)	Number of Fixtures	Watts/Fixture	Watts Proposed
	Retail Display Lighting from LGT-INT-DISPLAY			

Total Proposed Watts may not exceed Total Allowed Watts for Interior Lighting

Total Proposed Watts

Notes:

1. For proposed Fixture Description, indicate fixture type, lamp type (e.g. T-8), number of lamps in the fixture, and ballast type (if included). For track lighting, list the length of the track (in feet) in addition to the fixture, lamp, and ballast information.
2. For proposed Watts/Fixture, use manufacturer's listed maximum input wattage of the fixture (not simply the lamp wattage) and other criteria as specified in Section C405.5.1. For line voltage track lighting, list the greater of actual luminaire wattage or length of track multiplied by 50, or as applicable, the wattage of current limiting devices or of the transformer. For low voltage track lighting list the transformer rated wattage.
3. List all fixtures. For lighting equipment eligible for exemption per C405.5.1, note exception number and leave Watts/Fixture blank.

1. For proposed Display Fixture Description, indicate fixture type, lamp type (e.g. T-8), number of lamps in the fixture, and ballast type (if included). For track lighting, list the length of the track (in feet) in addition to the fixture, lamp, and ballast information.
2. For proposed Watts/Fixture, use manufacturer's listed maximum input wattage of the fixture (not simply the lamp wattage) and other criteria as specified in Section C405.5.1. For line voltage track lighting, list the greater of actual luminaire wattage or length of track multiplied by 50, or as applicable, the wattage of current limiting devices or of the transformer. For low voltage track lighting list the transformer rated wattage.
3. List all display fixtures.

Do Not Enter Lighting Here. Use LTG-INT-SPACE

* Lighting Power Allowances per Table C405.5.2(1)

Total

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Notes:

1. Proposed Wattage for each Building Area type shall not exceed the Allowed Wattage for that Building Type. Trading wattage between Building Area types is not allowed under the Building Area Method compliance path.
2. Proposed fixtures must be listed in the building area in which they occur. Include ALL fixtures.
3. For proposed Fixture Description, indicate fixture type, lamp type (e.g. T-8), number of lamps in the fixture, and ballast type (if included). For track lighting, list the length of the track (in feet) in addition to the fixture, lamp, and ballast information.
4. For proposed Watts/Fixture, use manufacturer's listed maximum input wattage of the fixture (not simply the lamp wattage) and other criteria as specified in Section C405.5.1. For line voltage track lighting, list the greater of actual luminaire wattage or length of track multiplied by 50, or as applicable, the wattage of current limiting devices or of the transformer. For low voltage track lighting list the transformer rated wattage.
5. For lighting equipment eligible for exemption per C405.5.1, note exception number and leave Watts/Fixture blank.

Exterior Lighting Summary**LTG-EXT**

2012 Washington State Energy Code Compliance Forms for Commercial, Group R1, and > 3 story R2 and R3

Revised June 2013

Project Info	Proj Address: <small>Fill this line out on LGT-SUM</small>	Date
	<small>Fill this line out on LGT-SUM</small>	For Building Department Use
	<small>Fill this line out on LGT-SUM</small>	
	Name: <small>Fill this line out on LGT-SUM</small>	
	Appl. Name:	
Appl. Phone		

Project Description	<input type="checkbox"/> New <input type="checkbox"/> Addition <input type="checkbox"/> Alteration <input type="checkbox"/> Plans Included
Lighting Zone <small>(as specified by Jurisdiction)</small>	<input type="radio"/> Zone 1 <input type="radio"/> Zone 2 <input type="radio"/> Zone 3 <input type="radio"/> Zone 4
Compliance Option	<input type="radio"/> Lighting Power Density Calculations <input type="radio"/> Total Building Performance
Building Grounds <small>(luminaires > 100 Watts)</small>	<input type="checkbox"/> Efficacy > 60 lumens/W <input type="checkbox"/> Controlled by motion sensor
	<input type="checkbox"/> Exemption (list) _____
Alteration Exceptions <small>(check appropriate box - sec. C101.4.3.1)</small>	<input type="checkbox"/> No changes are being made to the exterior lighting <input type="checkbox"/> New wiring installed to serve added fixtures and/or fixtures relocated to new circuit Provide applicable exterior lighting controls (C405.2.4) and commissioning of lighting controls per C405.13

Tradable Maximum Allowed Lighting Wattage				Base Site Allowance:	
Tradable Surfaces	Description	Allowed Watts per ft ² or per lf	Area (ft ²), perimeter (lf) or # of items	Allowed Watts x ft ² (or x lf)	
Total Allowed Tradable Watts:					

Tradable Proposed Lighting Wattage (use mfr listed maximum input wattage for luminaire.)

Surface	Fixture Description	Number of Fixtures	Watts/ Fixture	Watts Proposed
Total proposed tradable watts may not exceed the sum of total allowed tradable watts plus the base site allowance. Any base site allowance not needed to make tradable watts comply can be applied to individual non-tradable categories.				Total Proposed Tradable Watts:

Non-Tradable Maximum Allowed Lighting Wattage

Base Site Allowance Remaining:

Non-Tradable Surfaces	Description	Allowed Watts per ft ² or per lf	Area (ft ²), perimeter (lf) or # of items	Allowed Watts x ft ² (or x lf)

Non-Tradable Proposed Lighting Wattage

Surface	Fixture Description	Number of Fixtures	Watts/ Fixture	Watts Proposed

Non-tradable proposed watts may not exceed allowed watts for any individual surface unless the total excess watts for all non-tradable surfaces are less than the remaining site allowance.

Total excess Non-Tradable watts:

Site Allowance Balance:

Lighting, Motor, and Transformer Permit Plans Checklist LTG-CHK

2012 Washington State Energy Code Compliance Forms for Commercial, Group R1, and > 3 story R2 and R3

Revised June 2013

Project Address	Date
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The following information is necessary to check a permit application for compliance with the lighting, motor, and transformer requirements in the 2012 Washington State Nonresidential Energy Code.

Applicability (yes, no, n.a.)	Code Section	Component	Information Required	Location on Plans	Building Department Notes
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LIGHTING CONTROLS (Section C405.2)

<input type="checkbox"/>	C405.2.1	Manual lighting controls	Lighting control schedule with type, locations served, 50% lighting reduction method		
	C405.2.2.1	Automatic time switch controls	Lighting systems automatic shut-off capability - indicate method and location served on plans. Note locations where automatic shutoff is provided by other method (occupancy sensor, daylight controls, etc)		
		Override switching	Schedule with locations served - no single override switch exceeds an area of 5,000 SF		
	C405.2.2.2	Occupancy sensors	Schedule of locations served		
	C405.2.2.3	Daylight zones			
		Vertical fenestration	Primary and secondary daylight zone areas indicated on plans		
		Skylights	Skylight daylight zone areas indicated on plans		
	C405.2.2.3.2	Daylight zone controls	Lighting control schedule with dimming method and locations served - no single daylight control zone exceeds 2,500 SF		
	C405.2.3	Specific application controls	Specific application lighting controls are independent of general area lighting and controls for other lighting applications		
		Means of egress lighting	Lighting control schedule with method and locations served. Note luminaires that function as both normal and egress.		
		Display lighting	Lighting control schedule with type and locations served		
		Accent lighting	Lighting control schedule with type and locations served		
		Hotel/motel guest rooms	Lighting control schedule with type and locations served		
		Supplemental task lighting	Lighting control schedule with type and locations served		
		Non-exempt lighting equipment	Lighting control schedule with type, applications served and locations		
		Non-exempt lighting equipment	Lighting control schedule with type, applications served and locations		
	C405.2.4	Exterior lighting controls	Lighting control schedule with type, features and location served		

INTERIOR LIGHTING POWER (Section C405.5)

	C405.5.1	Total connected lighting power	Schedule with fixture types, lamps, ballasts, watts per fixture		
		Space exceptions	Space exceptions taken noted on plans or compliance form		
		Lighting equipment exceptions	Equipment exceptions taken noted on plans or compliance form		
	C405.5.2	Lighting power calculations			
		Building Area Method	Compliance form completed – proposed wattage per building area does not exceed maximum allowed wattage		
		Space-By-Space Method	Compliance form completed – total proposed wattage does not exceed maximum allowed wattage		
	C405.4	Exit signs	All internally illuminated exits sign are < 5 watts per side		

EXTERIOR LIGHTING POWER (Section C405.6)

	C405.6.2	Total connected lighting power	Schedule with fixture types, lamps, ballasts, watts per fixture		
		Exterior application exceptions	Exterior application exceptions taken noted on plans or compliance form		
		Lighting power calculations	Compliance form completed – proposed wattage for exterior lighting plus base site allowed does not exceed max. allowed		
	C405.6.1	Exterior building grounds lighting	Schedule with fixture types, lamps, ballasts, watts per fixture; lumens per watt for fixtures > 100 watts		

Lighting, Motor, and Transformer Permit Plans Checklist LTG-CHK

2012 Washington State Energy Code Compliance Forms for Commercial, Group R1, and > 3 story R2 and R3

Revised June 2013

Project Address				Date	
Fill this line out on LGT-SUM					
The following information is necessary to check a permit application for compliance with the lighting, motor, and transformer requirements in the 2012 Washington State Nonresidential Energy Code.					
Applicability (yes, no, n.a.)	Code Section	Component	Information Required	Location on Plans	Building Department Notes
ELECTRICAL POWER SYSTEMS (Sections C405.7 ,C405.9, C405.12, C409.2.1)					
	C409.2.1	Electrical energy consumption – whole building	Meters provided for whole building electric energy usage		
	C405.7	Electrical energy consumption – dwelling units	Individual dwelling unit electricity meters provided		
	C405.9	Transformers	Indicate transformer size and efficiency on plans		
	C405.12.1	Variable speed escalators and moving walks	Variable speed controls provided		
	C405.12.2	Regenerative drives	Variable frequency regenerative drives provided for escalators		
COMMISSIONING (Sections C405.13, C408.3, C409.4.4)					
	C405.13	Commissioning	Commissioning procedure developed for all applicable systems		
	C408.3	Lighting controls	Commissioning plan and functional test procedure developed		
	C409.4.4	Electrical energy consumption meters	Commissioning plan and functional test procedure developed		
		Escalators & moving walks	Commissioning plan and functional test procedure developed		

If "no" is circled for any question, provide explanation: